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Adding food chemistry and food microbiology data for enhancing industrial potentials of the spice

Gabriel O. Adegoke
University of Ibadan, Nigeria

Aframomum danielli, ginger, garlic and turmeric belong to the family Zingiberaceae. There are reports in literature that some spices possess anti-oxidative, anti-mutagenic and preservative properties. Since there are spices of commercial importance and with little information on *A. danielli*, the possibility of combining food chemistry and food microbiology procedures to highlight commercial potentials of the spice were carried out. Methodology: standard methods were used for extraction and characterization of essential oil from *A. danielli*, mitigation of mycotoxins and control of enzymes associated with liver dysfunction. Antioxidant effectiveness, control of food spoilage pathogens and preservative potentials of A.danielli were carried out. Findings: eucalyptol (58%), β-Pinene oxide (22%) and other terpenes were present in *A.danielli*. Essential oil (500 to 3000 ppm) of *A.danielli* had 50 -100% reduction efficiency (RE) of ochratoxin A in spiked cocoa powder and 76% (RE) in fuminosin B in a non-alcoholic beverage (kunu zaki) respectively. Feeding albino rats (100-200 mg/kg) with ground powder of *A. danielli* , serum enzyme levels of glutamate oxaloacetate transaminase , glutamate pyruvate transaminase and alkaline phosphatase were lowered by 67%, 86.3%, and 49.7% respectively when compared with control rats. Using refined peanut oil, antioxidant effectiveness of A.danielli (87.3%) was higher than tert-butyl hydroquinone (83.4%) and butylated hydroxytoluene (79.6%) respectively. Aframomum danielli inhibited Listeria monocytogenes, Aspergillus flavus and *A.ochraceus*. Under ambient conditions (26 ± 1 0 C ; RH 75 ±5 %) for 15 months maize and soybeans showed no mouldiness and insect infestation . With data obtained on the spice *A.danielli*, the unique properties of the spice can be exploited for industrial applications .

goadegoke@yahoo.com